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THE JOURNAL OF PHILOSOPHY

MATTER AND SCIENTIFIC EFFICIENCY. I

ST. THOMAS AND THE DIVERSITY OF MATTER

"Creativity" is another rendering of the Aristotelian "matter" and of the modern "neutral stuff." But it is divested of the notion of passive receptivity, either of "form" or of external relations; it is the pure notion of the activity conditioned by the objective immortality of the actual world—a world which is never the same twice, though always with the stable element of divine ordering. Creativity is without a character of its own in exactly the sense in which the Aristotelian "matter" is without a character of its own. It is that ultimate notion of the highest generality at the base of actuality.

THIS statement by Whitehead [1] suggests a continuity of ideas through the centuries. Indeed, the persistent use of the very word, matter, suggests a continuity of response to an unremitting demand. The significance of the term, from age to age, from thinker to thinker (whether scientist or philosopher), reflects the tension between speculative ideas and the compulsion exerted by sense experience. For this reason Whitehead can clarify the meaning of "creativity" by reference to Aristotelian matter.

Whitehead's words may then serve as a preliminary excuse for what would otherwise seem an act of recklessness. For it is daring, as this essay proposes to attempt, to relate the saintly author of the *Summa* to the no less saintly author of *Process and Reality*, even with the mediating function of the somewhat less saintly Descartes. The later saint, it is true, confronts a situation markedly different from that confronted by the earlier. Between them lies the achievement of an extraordinary body of scientific knowledge, or, more prudently expressed, of scientific findings. The saint of the *Summa* had a preparatory function, of which he was not wholly unaware. The latter-day saint's task is consummatory, since he must reckon with these findings. Despite this notable difference, both metaphysicians address themselves to an identical problem. For Thomas, assuredly, the central problem is that of defining concrete reality, the finite existent—that which can be said to be, but must be distinguished from absolute being. For

[1] *Process and Reality*, pp. 46–47.

Whitehead, the task is to re-capture the concreteness of existence; that is, to define the finite existence in the light of (and in spite of?) scientific findings. The work of Thomas as metaphysician may be fairly described as preparatory for scientific inquiry. Human cognitive powers are proportioned to things: what, then, is a thing? and what is the order of things? The philosophy of organism is a metaphysics sophisticated by centuries of interplay between scientific inquiry and philosophical reflection. The angelic doctor, despite his remarkable prescience, scarcely anticipated the burden he bequeathed to the future by his stubborn insistence on the competence of reason to attain knowledge of things, and his saintly conviction that it is the duty of men, the Creator having made them as they are, to seek to know something about every thing, even if they are not equipped to achieve complete knowledge about any thing. Our angelic doctor of the twentieth century must reckon with the results. Philosophy becomes the "critic of abstractions."[2]

The injunctions of Saint Thomas, however, could be obeyed only if an efficient procedural basis for inquiry could be devised. This was done. Whitehead affirms it. Having characterized the "scientific philosophy" which closed the seventeenth century, he writes:

> We must note its astounding efficiency as a system of concepts for the organisation of scientific research. In this respect, it is fully worthy of the genius of the century which produced it. It has held its own as the guiding principle of scientific studies ever since. It is still reigning. . . . No alternative system of organising the pursuit of scientific truth has been suggested. It is not only reigning, but it is without a rival.

But notably this doctor continues: "And yet—it is quite unbelievable. This conception of the universe is surely framed in terms of high abstractions, and the paradox only arises because we have mistaken our abstractions for concrete realities."[3] The situation is profoundly disturbing. We have a system of ideas providing astounding efficiency for inquiry; a body of findings resulting therefrom so vast as to be unassimilable by one man, even an angelic doctor; a conception of the universe defining the program of efficiency—and it is unbelievable. Indeed, it seems highly probable that thinkers far from saintly must have been at work during the interval between our two angelic doctors!

The interval was marked by a tension between metaphysics and existential inquiry, between ideas and the immediacies of experience. No term more fully represents that tension than "matter."

[2] *Science and the Modern World*, p. 86.
[3] *Ibid.*, pp. 80–81.

Efficiency in the pursuit of science required a notion of matter suitable to be the basis of high abstraction, for abstraction meant an economy appropriate to the limitations of our cognitive powers, those limitations which the good St. Thomas insisted upon no less than upon the competence of the powers. High abstraction, however, implies remoteness from concrete reality. As children and their very own metaphysician, Aristotle, know full well, scientists come perilously near talking nonsense. It is, then, not remarkable that experience (and experimentation) presented incessant demands for the revision of the concept of matter. The demands were concerned with the need for an inner diversification of matter, to the end that the idea might reflect the abounding concreteness of that world which Thomas insisted we could and should know. As Whitehead perceives the need with the sophistication coming from scientific findings, so Thomas perceived it in his metaphysical efforts to determine what scientific inquiry must seek to know. To Thomas, then, let us turn.

There occurs in a few Thomistic texts an intriguing expression —*the indefinite dimensionality of matter prior to the reception of the substantial form.*[4] The significance of such a formula depends upon the context within which it is to be interpreted. Now it appears necessary to distinguish two contexts, defined by and integral to the Thomistic system. To indicate this, consider the dis-

[4] Since I am not more than an interested student of Thomas, a word of apology is appropriate. My attention was called, some years ago, to this formula by Professor Mortimer Adler, who courteously supplied me with references. Their consideration led me to occasional speculations concerning the place of the formula in the Thomistic system. My interest, candor requires me to say, was primarily the by-product of an interest in Descartes. A growing tendency to look backward from the father of modern thought to Thomas, who should be defined as the grandfather, led me to believe that such texts were anticipatory of Descartes and of modernity's prolonged reckoning with "matter." The present essay is the result. An earlier draft was courteously and helpfully, but severely, criticized by competent Thomistic scholars —Professor Walsh of Manhattanville College and Columbia University and Professor Elizabeth Salmon of Fordham University. They found my interpretation inconsistent with Gilson and with Forest's *La structure métaphysique du concret selon saint Thomas d'Aquin* (*Études de phil. mediévale*, XIV, Paris, Vrin, 1931), a dissertation written under Gilson. This was disturbing. I had explained, in that earlier version, my reliance upon Gilson. Prayerfully I reexamined Gilson's texts, and made a rather thorough reading of Forest's magistral work. My debt to both—and to my critics—is great. But I found no collision. It was necessary to rewrite my essay in order to take advantage of what I had learned. But in the end my thesis seemed to be confirmed. The reader will understand that I am probably prejudiced—I seek to find the prologue for the drama of modern science within the ideas of the Angelic Doctor, whether or not he, at that time, foresaw the drama as did Descartes.

tinction between the Creator and the creature, between God and things, between Being and participated being. The source of existence is the Creator. To express this, a formula may be offered: Whatever can be said to be in any sense, and yet is not God and must be distinguished from God, is a creature, a something whose measure of being is received from God. (For present purposes, no extended refinements of meaning seem necessary. It is assumed that the formula represents Thomas, even if the nature and being of God, and the nature and status in being of all-that-is-not-God be left undetermined.) Whatever the disabilities of the human mind, it must employ such a distinction. Thomas certainly does. Thus mind must view things in two contexts: on the one hand, in a context or type of context that properly omits reference of things to the deity; on the other, a context whose ultimate significance is precisely this reference to the nature and being of the deity. The latter may be called the absolute context, the other being subordinate thereto. The subordinate is appropriate to the pursuit of scientific inquiry. The absolute would imply the necessity for metaphysical foundations *for* science, and a metaphysical reckoning *with* the results of science.[5] It is obvious that a term must be used with some equivocation when we pass from one to the other context. (The reference of the term to the deity—its meaning in a context whose solar idea is the nature and being of the deity—is of course not the same thing as using the term *of* the deity.) Finally, it is contended that there are certain ideas, estimates, and points of view, from which Thomas would never wittingly depart, and that he would never entertain ideas or expressions recognized to be in irremediable conflict with them.

The term "matter," for Thomas, must be understood within these two contexts, and by means of the interplay between them. Now matter is not a substance when form is completely absent. Matter does not exist by itself in nature, since matter as such is not an actual being, but only potentiality. It may be described as more a thing con-created than created.[6] It is one, not because

[5] For the sake of brevity, "metaphysics" is used as the equivalent of "philosophy" and as comprising natural or rational theology. "Theology" will be confined to doctrine dependent upon Faith and Revelation. In view of the total structure of Thomism, two "absolute" contexts might be distinguished, the metaphysical and the theological. For present purposes the distinction is neglected.

[6] *Summa theol.* Q. VII, r. to o. 3. The following abbreviations will be used: *Summa theol. ST; Summa cont. gen., SCG;* references to and quotations from the translations by the Fathers of the English Dominican Province are indicated by *E.* References to the original texts are to the Leonine ed., *L.* The work of Forest, referred to in note 4, is represented by *F.*

it has one form, but by the absence of all distinguishing form. Matter, in so far as it signifies bare privation of being, no-thingness, is nothing. Referring all existence to the Creator, it would be inappropriate to speak of matter, in so far as it is equivalent to nothing-ness, as "created." But matter, in so far as it signifies anything other and more than mere nothingness, must be referred to the deity. And so it is properly asserted that matter is created by God, albeit not apart from form.

> Since, however, we hold matter to be created by God, but not apart from form, matter has its idea in God; but not apart from the idea of it as compounded with form. Matter in itself can neither exist nor be known.[7]

> Now God's knowledge reaches to matter, individualizing accidents, and forms. For, since His act of understanding is His essence, it follows that He understands all that is *in any way whatever* in His essence: wherein are virtually, as in their first origin, all that have being *in any way whatever*, forasmuch as He is the first and universal principle of being; and amongst these we must include matter and accident, since matter is being in potentiality, and accident, being in another. . . .[8]

The expression, "in any way whatever," has been italicised, for assuredly it is not a thoughtless stipulation on the part of so incomparable a dialectician. Matter, then, in whatever way it *is* in the divine essence, is divinely understood. In whatever way it *does* have being, and is not a nothingness, it owes that being to God.

A subordinate context, together with such knowledge as may be had of things understood in accord with the idea defining the context, must be rethought in terms of the absolute context. But a subordinate context does not involve a reference to the idea of the deity as constitutive. Accordingly, it would appear that things—those things which can be said to be, but which are known in the absolute context to be other than God and are not God[9]—can be understood in limited fashion when they are taken *as if* existing independently of God. As the subordinate context must be assimilated to the absolute context, so the latter must ground the former. "Matter" considered in the absolute context is also considered anticipatorily in preparation for its function in the subordinate context. In this way "matter" receives definition so that science may use the term *as if* it stood for something absolute, for science's restricted purposes. The notion of matter must be prepared so as to implement the procedures of inquiry and to be fitted to receive the burden of meanings generated in inquiry. Within the sub-

[7] *ST*, Q. XV, 3rd art., r. to o. 3; *E*, p. 220.

[8] *SCG*, Pt. I, Ch. LXV; *E*, p. 136. Italics mine.

[9] Hereafter the formula is dropped, and the expression "finite existent" is used. *F* employs "concrete being."

ordinate context, matter will accumulate meanings reflecting this anticipatory preparation and also the cumulative results of scientific inquiry. But in return matter must be re-referred to the absolute context, to the end that the load of meanings may be re-evaluated.

With this in mind, we may turn to the intriguing Thomistic formulae. It is necessary to quote texts:

> . . . in the matter of things generable and corruptible, it behooves one to understand indeterminate dimensions before the taking on of substantial form. And therefore the division which is according to dimensions of this kind properly pertains to matter. But quantity, full and determinate, comes to matter after substantial form. Whence the division which is made according to determinate dimensions has regard to species especially when the determinate arrangement of the parts pertains to the nature [*ratio*] of the species, as is the case in the human body.
>
> . . . that which is understood in matter before form remains in matter after corruption: because the latter being removed there can still remain the former. It behooves one, moreover, . . . to understand in the matter of things generable and corruptible, before their substantial form, dimensions indeterminate, according to which the division of matter may be effected, so that it can receive diverse forms in diverse parts. And so matter, existing under those dimensions whatsoever form it may take, has greater identity with that which had been generated from it than any other part of other matter existing under whatsoever form.[10]

[10] *ST*, Pt. III, supp., Q. LXXX, art 5, r. to o. 3; Q. LXXIX, art. 1, r. to o. 3. I am deeply indebted to my colleague, Professor Walter Montgomery, for his translation of these and other texts. The translations were made intentionally as literal as possible. In the translation of the Fathers of the English Dominican Province, the above texts read as follows: "In the matter of things subject to generation and corruption it is necessary to presuppose indefinite dimensions before the reception of the substantial form. Consequently division which is made according to these dimensions belongs properly to matter. But complete and definite quantity comes to matter after the substantial form; wherefore division that is made in reference to definite quantity regards the species especially when definite position of parts belongs to the essence of the species, as in the human body." "That which is understood as though it were in matter before its form remains in matter after corruption, because when that which comes afterwards is removed that which came before may yet remain. Now . . . in the matter of things subject to generation and corruption, we must presuppose undeterminate dimensions, by reason of which matter is divisible, so as to be able to receive various forms in its various parts. Wherefore after the separation of the substantial form from matter, these dimensions still remain the same: and consequently the matter existing under those dimensions, whatever form it receive, is more identified with that which was generated from it, than any other part of matter existing under any form whatever" (*E*, p. 185; pp. 159–160). In *SCG*, treating of Eucharistic problems, the following texts occur: "Among the accidents, indeed, a certain order is to be noted. For, of all accidents, more nearly does dimensive quantity inhere in substance; afterwards, qualities are received in substance by a mediant quantity (*deinde qualitates in*

Here are a number of distinctions. There is matter. There are indefinite dimensionalities which must be presupposed as belonging to matter, independently of form. There is the substantial form. Finally, there is the complete and definite quantity which accrues to matter, or, more accurately, belongs to the finite existent in virtue of matter's reception of the substantial form. So far it would appear that dimensionality, or at least a certain indefinite dimensionality, does not come to matter through form but is inherent in matter independently of form.

Obviously, Thomas is facing the problem of the diversity of things. The question is, then, if the analysis of a finite thing is to be accomplished in terms of the distinction between form and matter: to what extent is the diversity the contribution of matter? The issue is one of metaphysical analysis. There is the concrete, the thing, the finite existent—that which is analytically taken to be a composite of matter-and-form. What content is to be assigned to form, what to matter? The analysis moves in two directions, one of which terminates in "prime matter." In the texts cited, the terminus seems to be described as matter-in-its-indeterminate-dimensionality. Now matter can neither exist nor be known. Is this matter that can neither exist nor be known the matter to which must be attributed indefinite dimensionality prior to the reception of the substantial form? Let us assume that beyond indefinitely dimensional matter lies prime matter. Prime matter, presumably, is wholly dimensionless. The term is a sign of something characterless at the base of actuality, to adapt the words of Whitehead.

substantia recipiuntur quantitate mediante), just as color by a mediant surface. Whence also through a division of quantity, they are divided *per accidens*. [*E:* Hence the division of the other accidents is incidental to the division of quantity.] . . . So, therefore, it must be posited that the accidents of bread, after the aforesaid change, remain, so that only dimensive quantity subsists without a subject, and in this itself qualities are founded as if on a subject . . ." (*L: SCG*, Pt. IV, ch. 63; *E*, p. 231). ". . . dimensive quantity has, in contrast with other accidents, this property that it is individualized *secundum se*. This is so because position, which is the order of the parts in the whole, is included in its very nature [*ratio*]: for it is quantity having position. . . . And because dimensive quantity alone has by nature that from which the multiplication of individuals in the same species can happen, the principal basis [*radix*] of multiplication of this kind seems to be from dimension because in the genus of substance multiplication is made according to the division of matter: which could not be understood except as matter is considered under dimensions: for quantity being removed, all substance is indivisible, as the Philosopher states . . ." [*E:* ". . . thus in the genus of substance multiplicity is according to material dimensions; in fact, it is inconceivable in matter apart from dimensions; seeing that without quantity all substance is indivisible . . ."] (*L: SCG*, Pt. IV, ch. 65, p. 209; *E*, pp. 235–236).

It is a sign that analysis of concrete being has come to an end, in one direction at least; it embodies a gesture whereby bare potentiality is granted. Prime matter, assuredly, can neither exist nor be known. With respect to indeterminately dimensional matter, it may be otherwise. It can be understood, in one sense, as both nonexistent and unknowable. Indefinitely dimensional matter is never "a this," a concrete existent, a thing. But it is not nothingness. If words are to mean anything, it is certainly not even the approximate nothingness of bare potentiality as such. It is, so to speak, a dimensional somethingness, albeit indefinitely dimensional. It is potential for determinate dimensionality, and clearly the determinate dimensions must be, at least in part, determinations of that very dimensionality which is said to be indeterminate before being determined. So far this would appear to be plausible: the indefinite dimensionality has a contribution to make to that which can be said to exist when the indefinite shall have become definite. It would appear, then, that to this meager extent indefinitely dimensional matter is knowable.

The issue may be formulated in another way. Matter can not be reduced to the point where it is identical with *privation*, sheer non-being.[11] We begin with the indescribable diversity of things, the multiplicity of existents, the things whose sensible differences Descartes (rightly or wrongly) thought to be sufficiently representable by the infinite multitude of figures. If now analysis pivot upon the distinction between form and matter, the matter-component must have *some* contribution to make to the existential diversity. Forest offers the following as a quite provisional formulation of the central idea of the Thomistic system: *L'existence concrète ne désigne pas seulement la position pure d'un être, elle est encore l'être d'une nature, cette nature à son tour comporte des éléments constitutifs.*"[12] He repeatedly characterizes the rela-

[11] "Avicenne revient ainsi à ce que saint Thomas nomme une doctrine platonicienne: on ramène finalement la matière à un véritable non-être parce qu'on ne la distingue pas de la privation" (*F*, p. 220). ". . . Saint Thomas dit souvent que la matière est *prope nihil;* encore est-il qu'elle doit bien, pour être comptée au rang de l'être, avoir en elle-même quelque existence; on ne saurait l'identifier au néant. Dans son texte très souvent cité, saint Thomas nous dite qu'elle est *prope rem et aliqualiter substantia rei, quia intrat in constitutionem substantiae; et pour cela il refuse de l'identifier avec la privation*" (italics of this last clause not in original). *F* adds that matter is, since it is an imitation of first being; it is not a complete substance; it has a natural relation to the form which comes to achieve it. It is the union of one with the other which alone renders the composite capable of existing (*F*, pp. 213–214).

[12] P. 39. "Le thomisme est un réalisme mystique. Le concret suppose en outre une composition métaphysique, soumise à cette condition de ne jamais

tion of matter and form as a reciprocal causality.[13] They are causes, doubtless, of different order, but this is not important for the issue at hand. Nothingness can not be a cause. The term "matter," employed in the analysis of existence, and defined as in a relation of reciprocal causality with form, must possess an inherent constitutive character. It must be somehow characterizable, to avoid its collapse into the monotonous nothingness of non-being. Deprive matter of every possibility of contributing to the *specific* diversities of existence—deprive it of dimensionality lending character to its potentialities: then matter tends towards identification with nothingness.

It is a principle common to Aristotle and St. Thomas that matter is always for the sake of the form [*en vue de la forme*], not the form for the sake of the matter. It is therefore impossible to imagine the diversity of forms as due to the necessity of adapting them to the diversities [*la diversité*] of the matters. The truth is the other way about; diverse matters are required to allow diverse forms to enter into union with them so as to make concrete subjects. Systematically applied, as St. Thomas applies it, this principle becomes an essential part of the metaphysical armature of the universe. . . . St. Thomas links it up with the concept of Creation. Then it results that the Christian God creates forms for themselves, and creates diverse matters [*les matières diverses*] only in the measure demanded by the diversity of the forms. . . ."[14]

Diversity of, in, pertaining to matter; diverse matters; matters —it appears unavoidable to dispense with such expressions.

détruire l'unité, qui se convertit avec l'être. Le thomisme est une métaphysique de l'unité" (p. 45).

[13] P. 207. Characterizing his own reading of certain texts, *F* concludes: ". . . la matière et la forme présentent une solidarité telle qu'il faut dire en rigueur que l'une est la cause de l'autre. La matière est cause de la forme en tant qu'elle en est le sujet, la forme est cause de la matière en tant qu'elle lui donne acte. L'expression la plus fidèle da la pensée thomiste nous paraît donc, en définitive, devoir être cherchée dans la doctrine de la causalité réciproque de la matière et de la forme" (p. 215; *cf.* p. 257).

[14] Gilson, *The Spirit of Mediaeval Philosophy*, Scribners, N. Y., 1936, trans. by A. H. C. Downes, p. 456; Fr. ed., Paris, Vrin, 1932, *première série*, p. 294. Gilson cites a text which may be translated as follows: "But the cause of the diversity of things is not from matter except as matter is demanded for the production of things, so that indeed according to the diversity of matter diverse forms are induced [*inducere*]. It is therefore not true that the cause of the diversity of things produced by God is matter. . . . In addition to this, according as things have being, so they have plurality and unity, for each and every thing, in so far as it is an entity, is also one; but forms do not have being for the sake of matter [*sed non habent esse formae propter materiam*], but rather matters for the sake of forms [*sed magis materiae propter formas*], for act is better than potentiality; moreover, that on account of which something is, must needs be better. Not, therefore, for this reason are forms diverse, that they may be adequate to diverse matters, but matters are for this reason diverse that they may be adequate for diverse forms" (*Comp. theol.*, Pars I, Cap. LXXI).

Doubtless the diversities reflect some contextual limitations of discourse—of this, more hereafter. But so far it can scarcely be denied that to matter must be ascribed an intrinsic constitutive property, a dimensionality proper to it as matter, a dimensionality either expressing a power of self-diversification or at least a nature anticipatory of the diversification effected by forms. Moreover, and this is crucial, it would appear that matter has some rôle in determining what forms are suitable for being received into itself. Either this, in the context of the analysis of finite existence, or else the distinction between matter and non-being, privation, collapses. The question is not whether the diversity of matter is there in view of form: the question is rather that of deciding what is meant by there being diversity in matter. How is this to be understood? and what content, other than uncharacterizable potentiality, can be assigned to the term?

Let us consider Forest's treatment of the problem. It is formulated thus: how can a certain diversity be found in matter anterior to the substantial form?[15] The proper nature of form, in the case of material substances, is that of an indeterminate reality. In order to achieve individuality, a complementary element must intervene, and this is matter. St. Thomas defines the rôle of matter in the simplest fashion when he says that it pertains to matter to terminate form.[16] In nature we find not only accidental but also substantial mutations. Metaphysical analysis compels us to recognize a certain subject of substantial mutation, and this is prime matter. Matter is the possibility of a form becoming other, the very possibility of change. As potentiality it is ordered to act. If we consider the bare multiplicity of substances, the form appears not as an act, in the proper sense of the term, but as a particular determination of an element which is indifferent to the reception of diverse forms. This factor is prime matter. But then prime matter is nothing more than pure potentiality.[17] Matter can not be understood by itself as purely indeterminate.[18] But matter is not to be identified with privation. It is intermediary, indeed, between act and nothingness, not between existence and nothingness, and so it participates in being.[19] If matter is only a negation, or a privation, then it follows that the form is a

[15] P. 191. *F*'s concept of the reciprocal causality of matter and form must be kept in mind. "... La matière et la forme, prises chacune à part, ont, en effet, un caractère inachevé, incomplet. S'il en est ainsi, la matière et la forme ne présentent aucune priorité l'une sur l'autre ..." (p. 207).

[16] P. 209.

[17] P. 211.

[18] P. 212.

[19] Pp. 213–214.

thing—the error of Avicenna. But it is the nature (*le propre*) of form to be the form of a matter. The union of matter and form defines the first character of a concrete being. A concrete being is indivisible, it is one in itself. Thomas everywhere opposes doctrines that tend to compromise the unity of being.[20] The veritable difficulty is this: matter, in order to individuate form, should be already such and such, and not such and such another. But in itself matter is entirely indeterminate. *"Materia prout nuda consideratur se habet indifferenter ad omnes formas."* What, then, is the principle that is susceptible of dividing matter, to cause integral parts to appear within it, parts attributed to such and such a composite and not to another?[21]

Forest now proposes to follow the evolution of Thomas's thought.[22] In the first stage, Thomas propounds that dimensions in matter prior to the substantial form proceed from a first form, corporeity. This explains the essential character of matter, extension in space.[23] Later, abandoning this solution, Thomas adopts from Averroes the notion of indeterminate dimensions.[24] For various reasons, declares Forest, this notion is discarded. But something of Averroistic terminology persists. *"Il est, en effet, une expression qui est très souvent jointe à celle des dimensions indéterminées et qui constitue avec elle un même tout:* materia individuata per dimensiones interminatas praeintellectas in materia."[25] Thomas, indeed, used the preceding ideas only in order to elaborate his own definitive thought.[26] This thought will be disclosed by finding in what sense, neither Avicennian nor Averroistic, but Thomistic, dimensions can be said to be *"praeintellectae in materia."*[27] The solution of the problem, Forest proceeds, will

[20] P. 225.

[21] P. 236. The "most delicate problem" is said to be: How can quantity intervene before the substantial form itself, at least by a priority of reason, in order to explain the individuation of substance? In general, says Forest, Thomas admits that the solution of the problem of individuation is to be found in the relations of matter and quantity, which he expresses by the classical expression: *materia quantitate signata.* But how, he continues, can quantity effectively play the rôle to which its essence, taken abstractly, permits us to consider it disposed and which is to introduce distinction into matter? *F* adds that an explicit exposition of this question is not found in Thomas's work (pp. 237–238).

[22] Pp. 238–246.

[23] P. 238.

[24] P. 239.

[25] P. 245.

[26] P. 239.

[27] P. 245. *F*, p. 246, n. 1, cites a text from *De An.*, which may be translated as follows: "From this fact that matter is constituted in corporeal being through forms, it follows immediately that there are dimensions in it, by

be found in a reflection on the solidarity of the material and formal causes, and more especially in a certain conception of matter which is clearly formulated at all of the principal moments of the system. This matter is pure potentiality, and it involves neither the form of corporeity, nor indeterminate dimensions, nor any seminal reason.[28] Forest then summarizes his own findings: The individual involves two characters. It is undivided in itself, and distinct from all others of the same species. Matter plays two seemingly different rôles, which in the end become identified.

Elle est d'abord le dernier sujet, qui ne peut plus être recu en un autre, elle vient ainsi limiter la communauté qui serait toujours celle des formes. La matière intervient donc ici en tant qu'elle donne à la forme l'ensemble des éléments dont celle-ci sera l'acte, et c'est par l'union de l'une et de l'autre que l'être est susceptible de l'existence. Mais il faut encore se demander comment cette matière qui de soi est commune, indivisible, peut être déterminée, devenir par suite telle matière susceptible de telle forme. La réponse de saint Thomas nous est connue: la matière n'est telle que par son rapport à telle quantité. Ainsi comprise, elle est le principe de la distinction, puisque le propre de la quantité c'est d'avoir des parties extérieures les unes aux autres. . . . Il est donc impossible de prendre à part la puissance de la matière et sa relation à la quantité; dire qu'elle est en puissance, c'est dire au contraire qu'elle exige telle quantité.[29]

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which matter divisible through diversity of parts is understood, so that according to the diverse parts of itself it can be susceptive [*susceptiva*—receptive?] of diverse forms; and further from the fact that matter is understood as constituted in a certain substantiality of being, it can be understood as susceptive of accidents, by which it is disposed toward the perfection of further things, according to which matter becomes fitted for the realization of further perfections. *Moreover, such dispositions are pre-understood* [*praeintelliguntar*—presupposed?] *as forms induced in matter by the agent,* though there are certain accidents not proper to form as such, which act as causes in matter only in virtue of the form itself; whence forms are not pre-understood in matters as if they were dispositions, but rather form is pre-understood in them as cause in relation to effects." This text, *F* declares, represents the extreme point of Thomas's reasoning.

[28] P. 247.

[29] P. 248. This may be supplemented by the following. Numerical diversity proceeds, in a sense, simultaneously from form and matter. Both form and matter must be called "*haec,*" but no form is *haec ex seipsa.* So the form of sensible substances is not a reality that matter limits. Without matter it would be entirely unreal. "Supposons, en effet, que la forme soit l'acte de tel élément particulier, elle devient alors déterminée par là même. Mais saint Thomas ajoute ici que cette matière, pour être telle, doit être distinguée, et qu'elle l'est par ses dimensions indeterminées; nous savons ce qu'il faut entendre dans sa pensée definitive: elle est distinguée par cela même qu'elle est puissance; cette réalité n'est, en effet, autre chose que celle d'un rapport à la quantité et à la forme" (p. 251). This seems rather confusing. We learn further that the final form of the problem of individuation is that of the relations of matter to quantity. But matter is not even extended by itself. "La matière apporte donc non une quantité effective, mais l'exi-

Let it be assumed that Forest presents authentic Thomism.[30] It is clear, from the preceding, that matter is not mere privation of being. It participates in being. What exists is a concrete thing: its nature and status are disclosed by an analysis which affirms the reciprocal causality of matter and form and assigns to the matter-component of analysis a contribution of its own. It appears equally clear, then, that restrictions are in order. Matter is indeterminate—but in what measure and in what sense? Matter participates in being—what value is to be ascribed to this participation? Matter is indifferent with respect to the forms to be received within it—is this indifference to be described, by a rhetorical device, as absolute or is this indifference relative to a set of forms? Matter is pure potentiality—is this potentiality illimitable, uncharacterizable? Prime matter, or matter, if you will, does not exist. What exists are things—roses, stones, dogs, and the like. Prime matter can not be known, at any rate not in the sense in which a composite of matter-and-form is knowable. But matter must function in metaphysical analysis, and must function without collapsing into irretrievable nothingness. Diverse matters and other plural expressions need not be taken seriously —at least in the present context. Nevertheless, the diversification of existence can not be due wholly to the diversity of the forms.

The authentic answer to these questions lies in the expression—*materia quantitate signata.*

> . . . d'une part, il n'y a pour chaque composé qu'une seule forme substantielle, de l'autre la matière est rigoureusement en puissance, elle n'intervient dans l'individuation qu'en tant qu'elle est en rapport à telle quantité et non telle autre, c'est ce que l'on traduit par l'expression *materia quantitate signata.*[31]

The very nature of quantity is to have parts exterior to one another. Matter is quantitatively signate. Matter participates in or contributes to individuation in so far as, and because, it is in relation to a given quantity and not to another. Now, admitting all

gence de la répétition des parties, à supposer, bien entendu, qu'il y ait un acte, que la forme a pour mission de donner" (p. 252). Later we read: ". . . il n'y a pour chaque composé qu'une seule forme substantielle . . . la matière est rigoureusement en puissance, elle n'intervient dans l'individuation qu'en tant qu'elle est en rapport à telle quantité et non telle autre, c'est ce que l'on traduit par l'expression *materia quantitate signata.* En un mot, l'idée la plus générale qui se présente à notre attention, c'est, en conclusion, celle de la solidarité et de la relation réciproque de la matière à la forme dans les substances matérielles" (p. 257). All of this, taken together, seems baffling. A given quantity, and not some other quantity—to what extent is this specification of quantity a contribution on the part of matter?

[30] *Cf.* note 4, above.

[31] *F*, p. 257.

qualifications and stipulations, can the conclusion be avoided that matter has an intrinsic constitutive property? As pure potentiality, is it not nevertheless limited in that its potentialities are quantitatively signate? Existents are quantitatively diversified. They have their particular respective quantitative characteristics. Doubtless the form, in the reciprocal causality of matter and form, contributes to the quantitative determination, for the existent is this-form-and-this-matter. But matter, by reason of the same reciprocal causality, also contributes. It contributes what it can appropriately provide. A certain very general signateness, signateness for quantity, appears to characterize matter. To speak figuratively, a form could not be received into a matter for which that form is not adaptable. Matter, in virtue of its intrinsic tendency to precipitate quantitative specification, must exclude a form, if any such form there be, which can not contribute to the existence of a thing with determinate quantitative aspects. Doubtless a form demands this quantity rather than that: but matter, so to speak, is prepared to meet the demand. The matter, or prime matter, functions both indifferently and selectively. It will receive indifferently any form provided that the form is such that it can evoke a quantitatively signate expression of matter's potentialities. But forms of a different order, if such there be, will be excluded from existence if incompatible with matter's inherent limited potentialities. It is contended, in sum, that the notions of reciprocal causality, of matter as not privation, of matter as potentiality, of matter as an analytical component of the finite existent, of the impossibility of separating the potentiality of matter and its relation to quantity, and related notions, can not be assigned a function in metaphysical analysis unless matter be described as endowed with a nature that inherently restricts the possibilities of existence.

For the sake of further clarification, the question may be considered in terms of the absolute context, in which the deity is the referent fixing the context. What follows may be regarded as conjecture—a speculative conjecture devised for the purpose of illuminating the problem of matter and Thomas's anticipatory rôle in the formation of the modern scientific tradition.[32]

[32] I trust it will be understood that the expression, "speculative conjecture," is used advisedly. It is my belief that the conjecture is quite in harmony with the spirit of Thomism. I believe it to be in harmony with some fundamental ideas of the system, if not with all. If authentic Thomism is an incredibly perfect and utterly coherent system, then, if the conjectures are in harmony with some of its basic ideas, it would be presumably in harmony with, and even demanded by, the system as a whole. I am not competent to decide such matters. It is of course quite possible that there are Thomistic

The absolute context receives definition, and becomes available for thought, in so far as the existence and nature of the deity can be known to finite mind. It is beyond the scope of this essay to define the context in terms of Thomas's total system. Nevertheless, certain features must be noted. The divine essence is not directly knowable, although something of it may be known by way of negation.[33] It is incredible that Thomas ever *knowingly* took a position really discrepant with this. Whatever is said by Thomas, and whatever is rightly construed in the spirit of Thomas, must accord with this position: the divine essence transcends man's powers of knowing save by way of negation.[34] This may be taken as a control over speculation.

Whatever things there are, that can rightly be said to be, are creatures of the Creator.[35] Now there are things possible to God's power, although they are not. ". . . God has knowledge of not-beings. Nevertheless not-beings have not all the same relation to His knowledge. For those things which neither are, nor shall be, nor have been, are known to God as possible to His power. Wherefore He knows them, not as existing in themselves in any way, but as merely existing in the divine power." ". . . God knows not-beings in so far as they have being after a fashion, either in the divine power, or in their causes, or in themselves."[36] God can do all things.[37] The things contained in creation are there because of God, and the things it does not contain are not there because they were not created to be there. Non-created things have being after a fashion, but obviously not after the fash-

texts utterly opposed to my conjectures. But I do not claim that Thomas either thought or advocated the extension of ideas involved in my speculations —in a sense, this would be irrelevant to my purpose.

[33] *SCG*, Bk. I, ch. 14; *E*, p. 33.

[34] Here, and elsewhere, I am omitting, for the sake of brevity, the intricate qualifications, based by Thomas on revelation and its function, that would be required to make the exposition adequate to the Thomistic system.

[35] Again for the sake of brevity, reference throughout is to "creatures" with respect to which "matter" is pertinent—i.e., souls and angels are omitted.

[36] *SCG*, Bk. I, ch. 66; *E*, pp. 141–142.

[37] *SCG*, Bk. II, ch. 22. I am not unmindful of ch. 25, "How the Almighty is said to be unable to do certain things." ". . . God is unable to do whatever is contrary to the *ratio* of being as being, or of *made being* as made." "And as God acts by will, so also does He act by *intellect* and *knowledge*. . . . Hence He can not do what He has foreseen that He will not do, or omit to do what He has foreseen that He will do, for the same reason that He cannot do what He wills not to do, or omit to do what He wills. Also each assertion is conceded and denied in the same sense, namely that He be said to be unable to do these things, not indeed absolutely, but on a certain condition or supposition" (*E*, pp. 44–47).

ion of the things that do exist, that are creatures created. Matter, as we have seen above, is created by God.

Let us consider further the not-beings known to God. Two proposals appear in accord with what has been established and prudently recognize the systematic limitations of our knowledge. First, it is assumed that some (if not all) of the not-beings are such that, *if* they were created (which by hypothesis they are not), *then* they would be creatures whose metaphysical analysis would involve "matter." Accordingly, of these not-beings it could be said: their "matter," if they were created, would be created by God, though not apart from form. Otherwise expressed: Not-beings, so far as is determinable by us, may be of two natures; first, of such a nature that "matter" is requisite for their created existence, were they to be created; second, of such a nature that, were they to receive existence, "matter" would not pertain to their existence. In view of our ignorance, it might be said concerning not-beings: (1) *All* not-beings are of such a nature that, were they created, "matter" would pertain to *none* of them; (2) or *all* are of such a nature that, were they created, "matter" would pertain *to each and every one;* or, finally, (3) of such natures that, were they created, some would be material things and some non-material. Relative to the human mind, these seem to be legitimate speculative conjectures. But how, under the control of Thomas's position, could we be justified in selecting between these alternatives? Have we the right to declare: The Creator did in fact create *all* of the things to whose nature matter would pertain? *all* of the things falling under the principle, that God has knowledge of matter but not apart from the idea of it as compounded with form? Do we know that the nature of the created universe that has been created represents the limits defining all possible material things? Are we warranted in asserting, quite simply: no material thing is possible unless it fits into this created universe? The very suggestion seems to place an indefensible limitation upon the divine power. It is then assumed that material things—to the analysis of which the distinction of matter and form would be pertinent—*might* exist although in fact they do not, have not, and will not exist, at least in this created universe. They have not appeared, and will not appear, in this creation because this creation does not contain the conditions for their coming-into-being.

The second conjectural speculation is this. Creation is an order.[38] The order is an expression, assuredly, of Divine Wisdom. It is in accord with a divine plan. Creation has the unity of order. How much man may know of this Wisdom, this plan, this order,

[38] *Cf. F*, pp. 276–278, and, in general, Ch. VIII.

and by what means, is a question irrelevant for the present purpose. It then seems reasonable to say: whatever creation does contain, it is an expression of this Wisdom and is compatible with this order. If, then, there are not-beings which the Creator could have created, but did not, so that they have not been and will not be parts of creation, it appears safe to assert that such not-beings are not because their creation was not envisaged in the divine plan and they would be incompatible with the order of creation. Since the divine essence is known to us only by way of negation, it is scarcely befitting to advance this as more than conjecture. Nevertheless, within the absolute context as defined by Thomism, it is legitimate.

Creation is then an order of mutually compossible things. But must not speculation be carried further? Assuredly, for Thomas, speculation has the function of enlarging the mind's vision and also of vitalizing its consciousness of limitation.[39] Must we not, then, expand conjecture by supposing that God could have created other creations than this one, which in fact He did create?[40] Since the divine essence is beyond our direct comprehension, it is impossible for the finite mind to determine possibilities as if it did comprehend what it can not comprehend. Now creation has a unity of order corresponding to the divine purpose leading to its existence. If, then, the Creator's purpose were other than in fact it is (whatever be that purpose and whether we are vouchsafed much or little knowledge of it), the Creation effected in accord with a different purpose would presumably be different from the creation that was in fact created and created in accord with a plan. Let it then be assumed that, for all we know, an indefinitude of Creations are possible to the divine mind and power.[41] At any

[39] Thomas's incorrigible rationalism must not be overlooked because of the limitations that are for him inherent in the very nature of our cognitive powers. Reason too is from God, and its exercise to the limit, but with consciousness of limitations, is divinely warranted.

[40] "The very order of things created by God shows the unity of the world. For this world is called one by the unity of order, whereby some things are ordered to others . . ." (*ST*, Pt. I, Q. XLVII, art. 3; *E*, pp. 259–260). This statement, it must be pointed out, is followed by a denial of the existence of many worlds. Now it must be noted that the "order of things is the best possible" (*SCG*, Bk. I, Ch. XLII; *E*, p. 88). But in view of the texts cited in Note 37 above, it is clear that Thomas carefully safeguards the meanings to be attributed to any proposition implying a restriction upon God's power. Inability ascribed to the deity is not to be taken absolutely, but only on a certain condition or supposition.

[41] "Being itself, considered absolutely, is infinite; for it can be participated in by an infinite number of things in an infinite number of ways" (*SCG*, Pt. I, Ch. XLIII; *E*, p. 96).

rate, it is conceded that there are not-beings known to God as in His power. Let C_1, C_2, C_3 . . . represent the indefinitude of creations that, so far as we know, are possible. It is understood that one of these, C_w, in fact does exist. Let us revert to an earlier conclusion. With respect to not-beings, we can *not* say that *all* not-beings are such that, *were* they created, the finite existents so arising would be one and all "immaterial" beings. Analogously, it is unwarrantable to declare that all possible creations, other than C_w, would necessarily be through and through "immaterial"; that they would be so many orders of existence with respect to which, for an appropriate metaphysical analysis, the factor "matter" would be in every case irrelevant. Given the conditions under which speculation must proceed, it must rather be said: For all we know, some, or all, or none of these creations, C_1, C_2, C_3 . . . would be wholly "immaterial"; for all we know, some or all or none would be "material"; for all we know, some or all or none would contain beings of an immaterial nature together with some existents of a material nature. (It is important to bear in mind that C_w, the creation that does exist, contains created immaterial creatures as well as creatures composite of matter and form.) It seems then impossible to deny that, for all we know, other creations involving matter are possible to the divine Will, Intellect, and Power.

Now "matter" signifies potentiality. If, then, there are not-beings and not-Creations, known to God as in His power, and if some of these not-beings and not-Creations are of such natures that, were they to exist, they would be material beings or created worlds at least in part containing material beings: then matter must signify this total range of possibilities. Let C_{m_1}, C_{m_2}, C_{m_3} . . . represent possible creations containing matter-things, C_{mw} representing that actual created world that does contain material things. Now there must be an all-comprehensive meaning of "matter" comprising this range of possibilities. But there must be assigned a meaning relative to the beings and the creation (C_{mw}) that do exist in distinction from the not-beings and not-Creations which, by hypothesis, do not exist. Let us call a totality of forms that, if materialized, would constitute C_{m_1} or C_{m_2} or C_{m_3} . . . a world-set. Then a "matter" appropriate to each world-set must be posited. Every such matter would be the prime matter of its own world-set. Every not-creation, were it created, would presumably have its own unity of order, "whereby some things are ordered to others," reflecting divine Wisdom. This unity of order would assuredly be found in the corresponding world-set, and since diversity of matter is in view of form, there would be a matter appropriate to this world-set. Now it has been

shown that matter in Thomism does not and must not signify irrevocably bare privation. It is known to God though not apart from form.

It is contended that the speculative pathway being pursued is not in conflict with at least a part of Thomistic doctrine. Indeed, it is demanded by it. We are then led to this speculative outcome: The term "prime matter" must be used in two notably different ways. On the one hand, it signifies prime matter, possibility, in relation to, as pertaining to the existence of, a particular creation, possible or actual, C_{m_1}, C_{m_2}, . . . or C_{mw}. In the case of C_{mw}, the world that the deity did in fact create, the prime matter of this world is in relation to the world-set of forms found materialized in C_{mw}. There are, then, or, for all we know may be, many such matters. Let each such matter be called a restricted prime matter. Then by analogy this formula might be set up: the idea of each such restricted prime matter is known to God, but not apart from the world-set of forms in view of which a restricted prime matter can in any sense be said to be. For the sake of being explicit, it might be said that every restricted prime matter has its own indefinite dimensionalities. For C_{mw} the expression, *materia quantitate signata,* may represent *its* restricted prime matter. But now, in view of our limitations, and since it is admitted that there are not-beings known to God as in His power, we must express the competence and the incompetence of the human mind by representing all that is possible to Omnipotence. We must extend the term "prime matter" to cover not-beings and not-Creations in order that it may represent the speculative terminus. It is necessary, then, to postulate an absolute prime matter, an unrestricted prime matter, a prime matter of all prime matters, known to God in the way in which matter is known to God. It is indeed pure potentiality. It could properly be called indeterminate. A restricted prime matter could be regarded as signate for a world-set, but absolute prime matter has no such limitation. For a world-set, the prime matter that would make possible the reciprocal causality of matter-and-form is indeterminate with respect to the particular forms of that world-set, but somehow determinate with respect to the world-set as a systematic total. Absolute prime matter lacks such limitations upon its indeterminacy. Its indeterminacy must correspond to the inexpressible range of all that is possible to God. A restricted prime matter is relative to a world-set whose contraction of an appropriate prime matter results in a world, a creation, say C_{mx}, and not in some other. If the finite mind can and must take God as absolute referent; if it must acknowledge the unknowability of the Divine Essence save by way

of negation; if some meager distillations of an affirmative value come by that way: then that mind must metaphysically represent the illimitable horizon of possibility within that unfathomable Divine Essence. Adopting Descartes' favorite word, the immensity of the Divine Being must needs be indicated. Absolute prime matter serves not uselessly, in the control of speculation, to express our incompetence to know—save by way of negation—the creative power of the deity. The distinction between restricted and absolute prime matter, in whatever words it may be clothed, appears to be implicit in Thomism. Correspondingly, the notion is warranted that the "prime matter" of the creation that God did create (C_{mw}) possesses an inherent principle of readiness for diversification. It has a capacity for contributing to the being of things that are contained in this creation, so that it is neither bare privation nor a sign of *all* that is possible to God. (After all, this creation does contain immaterial beings.) The restricted prime matter involved in the metaphysical analysis of the creatures that God did create, of *this* creation, must be understood in relation to the unity of order of *this* creation, not in relation to other creations that, for all we know, the Creator might have created, but which, again for all we know, He did not create. In a subordinate context, analysis may proceed as if restricted prime matter were prime matter, bare possibility. The analysis thus prepares the way for scientific inquiry, seeking to carry on the task blessed by the Angelic Doctor and to find out about minerals and plants and animals and stars and other things found within the world. But in the absolute context, metaphysics must distinguish between a restricted and an absolute prime matter.

The metaphysical analysis of Thomas may or may not be the most coherent achieved by man. That is not here in question. The point is that the Thomistic analysis will collapse—or veer towards "Platonism"—unless (restricted) prime matter is endowed with a power of diversification at once limited and positive and indefinite and exclusive. It is intermediary, as Forest declares, between act and nothingness. It is ordered to act, indeed; it is indifferent to the reception of diverse forms—provided that the forms are such that they *can* be received. The prime matter of the world to be studied in the sciences is indeed potentiality—but not globally, illimitably, incomprehensibly.

In the procession of the centuries, one René Descartes can not be ranked as the very least of the students of St. Thomas.[42]

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[42] To be concluded in the next issue.

BOOK REVIEW

The Uses of Reason. ARTHUR E. MURPHY. New York: The Macmillian Company. 1943. vii + 346 pp. $3.00.

In this genuinely enlightening book Professor Murphy offers a vigorous and eminently reasonable defense of human reason as a trustworthy organon for finding things out. His argument aims to show that rational methods for achieving knowledge are available not only in settling problems concerning matters of positive fact, but also in the resolution of moral questions, in the assessment of social ideals and actions, and even in the evaluation of philosophic "ultimates." Mr. Murphy is acutely aware of current trends exhibiting some form of scepticism concerning the powers of reason—trends noticeably in many contemporary interpretations of science, in widespread attempts to substitute a descriptive anthropology for a normative moral theory, and in the loud claims of romantic philosophies and obscurantist religions. He believes that these trends, by undermining confidence in the power of reasonable methods, are serving the powers of darkness and social confusion. He therefore subjects to a penetrating critique a number of contemporary writers who have attempted, in one fashion or another, to limit the rational use of ideas; and he shows convincingly that the grounds commonly offered to justify an insurgence against reason are untenable and unenlightened.

But Mr. Murphy has produced much more than a tract for the times. For his book illustrates the use of a powerful method of critical philosophy, and thereby contributes to the analysis of some of the "ultimates" which it is the business of philosophy to consider. His chief instrument of clarification is the method of contextual analysis which pragmatists have brought into contemporary prominence. He employs it to clarify our ideas of reason by emphasizing the plurality of contexts in which reason can function, and by exhibiting its specific functions in the several contexts in which it is found to operate. Accordingly, Mr. Murphy's defense of reason is no wholesale justification of it on the basis of some prior commitments in epistemology or metaphysics. His defense consists in identifying the use of ideas in several readily distinguishable types of contexts, and in noting that corresponding to each such type there is a remarkable way of using ideas—a way which yields warranted conclusions relevant to the problems characterizing the context examined. Mr. Murphy does not believe that the several ways thus discovered for using ideas must necessarily conform to a common standard of reasonableness, irrespec-

tive of the contexts in which ideas may be employed. On the contrary, he maintains that one important source of the current disparagement of reason is the assumption that standards which have been found appropriate in judging the use of ideas in *one* context *must* be canonical for *all* contexts. Indeed, it is an "ultimate" fact about reason that it functions in different ways in different domains; and Mr. Murphy's severest strictures are directed against the unreasonable demand that the conditions of reasonableness which have been discovered to be characteristic of the use of ideas in one type of context should be adopted as ultimate for every other type.

The first context in which Mr. Murphy examines the rational use of ideas is in the pursuit of factual truth. His discussion includes an excellent defense of modern science against those who would disqualify its cognitive claims because of the "abstractness" and "qualitative vacuity" of its theories. Furthermore, he finds that the emancipation of science from metaphysics represents an important discovery as to the way in which factual inquiry can best proceed; accordingly, that emancipation can not be viewed, as some hostile critics have supposed, as a sign of intellectual disintegration.

The greater part of Mr. Murphy's book aims to show that there is a reasonable use of ideas in the context of moral evaluations and in the consideration of social ideals and actions. This context is the field of operation of practical reason. By "practical reason" Mr. Murphy understands "the use of reason in the organization of desires and the adjustment of claims in the pursuit of goods judged to be desirable by methods held to be just and proper to that end." His defense of it is directed against two sets of hostile critics. In the first place, he challenges the claim of "absolutists" in moral theory who maintain that no moral judgments can be validated without reference to a "reality" transcending the powers of reason. This claim is dismissed as unwarranted, because moral qualities are not intrinsic properties of things, but accrue to them in their realtion to a comprehensive ordering of human interests operating under specific existential conditions. In the second place, Mr. Murphy vigorously disputes the view that ethical statements, in so far as they involve reference to norms, are either meaningles or are rationally unjustifiable. This view is traced to the uncritical adoption of a positivistic methodology for settling moral questions, and to a no less uncritical interpretation of the fact that different societies exhibit a great diversity of moral standards. In this connection Mr. Murphy finds extraordinary merit in Kant's recognition of a function of reason which is not controlled

by the categories of natural science; and though he is accurately aware of the fatal consequences for moral theory which still continue to flow from Kant's separation of morals from natural science, he believes that Kant's distinction is a fundamental contribution to moral enlightenment. Mr. Murphy also offers a sympathetic reading of the categorical imperative, so that it formulates the valid ideal of coöperative order in a community no member of which serves merely as a tool for satisfying the interests of others.

It is certainly not difficult to agree with Mr. Murphy that when natural and social scientists reject moral judgments as meaningless simply because such judgments can not be established in terms of the specialized techniques of physics, they are exhibiting a "trained incapacity" to see moral issues and are displaying serious confusions of thought. His discussion of current literature illustrating such methodological amoralism is as conclusive as it is just and sane. On the other hand, it is not easy to gather from Mr. Murphy's account of the differences between practical reason and reason in pursuit of factual truth, whether he thinks they differ simply in their *subject-matters* or whether he thinks they differ in their logic or conditions of reasonableness. He declares that if "verification" means "proof or disproof by reference to agreement or disagreement with observed matters of fact," moral judgments are not verifiable; and, accordingly, "if 'scientific method' is identified with the procedure by which matters of fact are ascertained, then practical reason is not reducible to scientific method, though it depends at every turn on information which the sciences supply." Nevertheless, he maintains that moral judgments can and should be "substantiated," in the sense that "they are publicly justifiable within a community whose common concerns they bring to reasonable expression and adjudication." Whether the mode of validating moral propositions is *called* "scientific method" or by some other name is of little import; but it is of greatest possible import to be clear concerning the way practical reason goes about its business. Mr. Murphy does not quite succeed in making it as clear as it needs to be made, though his attempt to do so is admirable. He declares that

> Questions of factual truth are inseparably bound up with the assessment of the validity of ideals, and the determination of truth must here be made, as elsewhere, without appeals to any special insight, or authority or metaphysical illumination that transcends the pedestrian methods of fact-finding appropriate to the discovery of what is happening, has happened and is likely to happen in the world in which our bodies and their perceptually observable environment are palpably involved. But since questions of what has happened, is happening or will probably happen are here considered in their bearing on what is desirable as a goal for action, and since what is desirable, on the

human level, is a question not only of what is actual and possible but also of what is good, the factual question is not the only one at issue. Information about matters of fact thus determined is necessary but not sufficient to the adequate validation of ideal claims. [Pp. 251–252.]

But what these other questions are is left in some obscurity, and how they are to be resolved if not in terms of settling issues of fact is not explained. Mr. Murphy declares that "A valid ideal is itself neither a report nor the expression of an attitude or wish, but an estimate, based on reports, of the good worth pursuing under actual conditions in which a variety of wishes and attitudes in themselves incoherent and full of potential conflicts can attain a reasonable satisfaction" (p. 252). And somewhat earlier in the book he explains that the good "is something to be found out, on the basis of the best information available, about the way in which men can live well together and develop those capacities of which the moral virtues are at once the natural fruition and the spiritual reward (p. 133). Taken together, these last two citations suggest that practical reason differs from the reason of factual inquiry as reason working in, say, astronomy differs from reason working in biology—in subject-matter and not in its logic, in spite of Mr. Murphy's insistence elsewhere on the "irreducibility" of practical reason to "scientific method." His generalized account of what constitutes a reasonable use of ideas in the province of practical reason thus lacks a satisfactory clarity, and cries out for supplementation. It would certainly be most instructive, for example, if Mr. Murphy were to make explicit, in some detail and not only in somewhat vague outline, how according to him one should proceed in order to "publicly justify" his version of the categorical imperative.

The final context of the rational use of ideas which Mr. Murphy examines is the philosophic analysis of "ultimates." As could be anticipated from the preceding, he has no use for systems of philosophy that attempt to legislate for the "reality" of various phases of experience on the basis of an antecedent decision as to what is ultimately real. He does believe, however, that it is the job of philosophy "to provide a standpoint from which other interests and activities, in themselves one-sided, partial and half-thought-out, can be ordered, understood and made complete." But he does not indicate how such a synoptic philosophy is to be achieved, and in fact does not believe it is likely that the present generation will achieve it. On the other hand, he recognizes that there are many "ultimates" in human experience, and maintains that to be reasonable about them is to justify the claims for their ultimacy by indicating the purposes for which a particular standpoint is valid in the organization of experience. The central thesis

of the book, that reason in its several functions is ultimate in each context of its functioning, thus appears as a capital illustration of the philosophic use of ideas.

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BOOK NOTES

Foreign Influences in American Life. Essays and Critical Bibliographies. Edited for the Princeton Program of Study in American Civilization by DAVID F. BOWERS. (Princeton Studies in American Civilization, volume 2.) Princeton, New Jersey: Princeton University Press. 1944. x + 254 pp. $3.00.

The material presented in this series of essays was developed in connection with the undergraduate conference of the Princeton University Program of Studies in American Civilization during 1942–1943. Possibly for this reason the most valuable section of the book is Part II, composed of critical bibliographies. While these bibliographies are by no means exhaustive in any particular field, they do suggest the most valuable references for beginning students. The bibliography dealing with "The Religious and Philosophic Impact" of foreign ideas on the American tradition is especially full and generally good although it has unaccountable omissions and accepts too uncritically the works of I. Woodbridge Riley.

Of the essays, by far the most satisfactory are Professor Frank D. Graham's "Ethnic and National Factors in the American Economic Ethic," and Professor Donald Drew Egbert's illustrated "Foreign Influences in American Art." Graham's analysis of Puritan economic philosophy is especially noteworthy. The editor, David F. Bowers, director of the American Conference at Princeton University, in his introductory essay, "The Problem of Social and Cultural Impact," attempts a formal and terminological analysis of cultural impact.

In "The Americanization of the Immigrant," Dr. Stow Persons accepts uncritically the stereotype that the American attitude toward the immigrant was at first one of "complaisant welcome," based "on the assumption that he was honest and industrious and would in time adjust himself to the new world and become a worthy addition to the population" (p. 42). Even a superficial reading of the popular literature of the time, especially of the Independence Day orations delivered in New England and New York, would dispel this misconception. Mistrust of the immigrant has

been a constant in American life; it is not, as Dr. Persons asserts, a later accretion.

Most significant for readers of this JOURNAL is Professor Bowers' discussion of "Hegel, Darwin and the American Tradition." This one instance of foreign influence is used by the author as a typical representative of all the cases in which foreign ideas influenced American philosophic thought. In Bowers' view, the common basis of American thought "involved the acceptance of three articles or postulates; the postulate of dualism, the postulate of fixity, and the postulate of atomism" (p. 148). Dualism (meaning here the belief in the existence of both the natual and the supernatural world) is one heritage of American thought from Plato, by way of the Christian Platonists; fixity, also a Platonic postulate, assumes a static world-order, "in which variation and change are definitely limited, and repetition and predictability become primary features"; atomism, a postulate derived from Bacon, Descartes, Locke, and Newton, holding that every existence is ultimately simple in nature, is asserted to be the basis of American individualism. One weakness of this method is that it subordinates historical orientation to verbal identification.

The philosophy of Hegel and the evolutionary theory of Darwin, different as they were in themselves, were at one in attacking these three fundamental postulates; organicism and evolutionism are equally monistic; process and development are equally unstable, in flux; respect for the institution and concern for the species equally represent a shift from the centrality of the individual. With the acceptance of either of these un-American philosophies, the basic postulates of American thought were doomed. When both were accepted at once the result was a radical critique of American traditionalism, best illustrated, according to Bowers, in the instrumentalist philosophy of John Dewey. "In the end, therefore, Dewey's philosophy, far from representing a logical development of what was implicit in the American tradition to begin with, is actually an innovation, a radical reinterpretation of that tradition in monistic, relativistic, and institutional terms" (p. 169).

The section of the bibliography dealing with the philosophic impact of Darwinism also contains a bold attempt at the delineation of the history of impact in another major aspect of contemporary American thought. "Superficial, vague, and mechanical in its conclusions, evolutionism as a specific philosophic system scarcely outlasted the generation which created it. Its effects on other fields, however, were extensive and profound. In literature, e.g., it reinforced the trend toward naturalism in such writers as Jack

London, and accounts at least in part for the popular taste for novels of the type of Edgar Rice Burrough's *Tarzan*" (p. 248).

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OTHER NEW BOOKS AND JOURNALS

A. A. Roback: A Dictionary of International Slurs. (Ethnophaulisms) With a Supplementary Essay on Aspects of Ethnic Prejudice. Cambridge, Mass.: Sci-Art Publishers. 1944. 394 pp. $6.25.

THE PHILOSOPHICAL REVIEW. Vol. LIII, 6. Bolzano's Logic: *H. R. Smart.* Causation and Perception: *R. W. Sellars.* The Good as Harmony: *Sidney Zink.* Discussion—What Sort of Freedom Does Moral Responsibility Presuppose? *Frances H. Murphy.* Professor Sellars' "Reformed Materialism and Intrinsic Endurance": *R. M. Ogden.*

PHILOSOPHY. Vol. XIX, No. 74. Community Purpose and the Nazi Lesson: *J. W. Harvey.* Kant and Natural Science: *B. M. Laing.* Interestingness: *W. T. Stace.* Globus Intellectualis: *F. H. Heinemann.* Discussion: The Experimental Establishment of Telepathic Precognition: *C. D. Broad.*

JOURNAL OF THE HISTORY OF IDEAS. Volume V, Number 4. Coleridge as Aesthetician and Critic: *C. D. Thorpe.* The Historical Background of Maritain's Humanism: *G. G. Coulton.* Maritain and Modern Catholic Historical Scholarship: *W. J. Grace.* Militarism in the Western World: *A. T. Lauterbach.* Notes and Documents—A History of the Concept of Ideology: *J. C. Roucek.*

THE NEW SCHOLASTICISM. Volume XVIII, Number 4. Desiré Joseph Mercier and the Neo-Scholastic Revival: *J. J. Harnett.* Social and Moral Relevants of the Psychological and Philosophical Concepts of Personality and Individuality: *J. M. Wolfe.* A Plan for Integrating the Catholic College Curriculum: *E. A. Maziarz.* The Aristotelian Forms of Disputation: *Solomon Simonson.*

NOTES AND NEWS

The semi-annual meeting of the Conference on Methods in Philosophy and the Sciences will be held at the New School for Social Research, New York City, on Sunday, December 3, 1944. The morning session is devoted to the Nietzsche Centenary, and the three papers are "Nietzsche's Theory of Decadence and the Transvaluation of All Values" by George B. de Huszar of the University

of Chicago; "Nietzsche's Doctrine of Eternal Recurrence" by Karl Lowith of Hartford Theological Seminary; and "Nietzsche: An Evaluation" by Charles Morris of the University of Chicago. Discussion by Kurt Riezler, James Gutmann, Paul Tillich, Walter Eckstein.

At the afternoon session on "Evolution and Genetic Method" the following papers will be read: "The Varieties of the Genetic Method" by Sidney Ratner, Washington, D. C.; "Genesis of Beliefs and Validation of Beliefs" by Felix Kaufmann, New School for Social Research; "Methods of Genetics in Their Application to Problems of Living Matter and Evolution" by Herman J. Muller, of Amherst College. Discussion: J. H. Randall, Jr., Morton G. White, Philip Wiener.

Professor Arthur E. Murphy, head of the Department of Philosophy and chairman of the Division of Social Sciences at the University of Illinois, has been appointed, beginning July 1, 1945, Professor of Philosophy in the Sage School of Philosophy at Cornell University.

Professor Brand Blanshard of Swarthmore College has accepted the appointment of Professor of Philosophy at Yale University beginning with the next academic year.

Christopher B. Garnett, Jr., Elton Professor of Philosophy at the George Washington University, Washington, D. C., has been named Dean of the Junior College at that university.

Dr. Julius Kraft, Lecturer in Philosophy at the University of Utrecht, has gone to Colgate-Rochester Divinity School as Visiting Professor of Philosophy for the year 1944–1945. From 1939–1944 he was Lecturer in Philosophy at the University of Rochester.

Henry D. Aiken, formerly instructor and tutor in the Department of Philosophy at Harvard University, is now Associate in Philosophy at Columbia University.

We regret to learn of the death of Professor G. F. Stout, editor *of Mind,* 1892–1920, and Professor of Logic and Metaphysics at St. Andrews, 1903–1936. Professor Stout died in August, 1944, at Sydney, Australia, at the age of 84.